

Incinerator NUKEM_IncPro: Your Solution for Safe and Efficient Waste Management



Efficient and Versatile: NUKEM's Compact Solution for Radioactive and Hazardous Waste Management

NUKEM's incinerator IncPro enhances and simplifies the treatment of considerable amounts of radioactive and hazardous waste, offering a versatile, small-footprint solution for industries handling those materials.

With a throughput of 25-50 kg/h, this compact incineration system is engineered for high-temperature oxidation, effectively reducing the volume and hazard level of nuclear and other hazardous waste materials. Whether in nuclear power plants, research facilities, hospitals and medical facilities, oil and gas extraction facilities or refineries, our incinerator meets diverse disposal requirements by providing a reliable and efficient method for treating solid and liquid wastes.

Key Benefits:

- > **Volume Reduction:**
Witness significant volume reduction, minimizing storage and disposal space requirements.
- > **Emission Control:**
Employ advanced technologies to meet environmental regulations, ensuring that no pollutants are released.
- > **Conventional Hazard Removal:**
Safely decompose organic materials, mitigating their chemical and biological hazards.
- > **Stabilization:**
Convert radioactive materials into chemically stable forms for secure disposal.
- > **Proven Technology:**
Rely on decades of operational expertise, backed by extensive research and practical application.
- > **Flexibility and Scalability:**
Tailor the system to your specific needs, accommodating various types and quantities of waste.
- > **Mixed Waste Treatment:**
Handle mixed waste streams effectively, ensuring comprehensive waste management.
- > **Cost-Effective:**
Optimize operation costs with efficient combustion chamber construction and robust construction materials.
- > **Easy Maintenance:**
Benefit from straightforward upkeep, minimizing downtime and ensuring continuous operation.

NUKEM adopts a modular approach for each application, offering adaptable solutions perfectly aligned with your requirements. From standard models to customized systems, we ensure flexibility, cost-effectiveness, and sustained operational excellence.

Technical Specifications

Physical Dimension:

Dimensions: 5.5x3.0x4.1 m³ (dimensions including nozzles and supports)

Weight:	
Metal shell:	approx. 16 tons
+ Refractory material:	approx. 19 tons
= Total approx. 35 tons	

Operation

- > **Operation time:** 24 hours
- > **One operation cycle:** 7 days

Fuel

- > **Diesel / Propane**
- > **Fuel flow rate (at both burners):**
approximately 25 kg/h

Electrical Supply Requirement

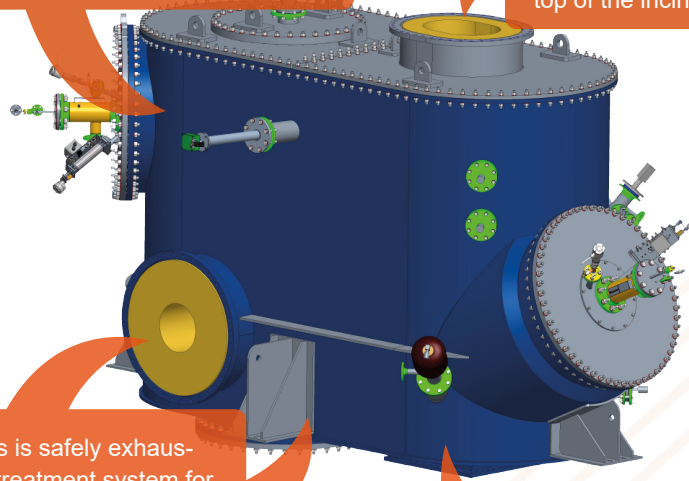
- > **Power consumption:** 130 kW
- > **Voltage:** 380 V AC
- > **Frequency:** 50 Hz

The incineration process is regulated by the instrumentation of the control system. Furthermore, it is closely monitored by two video cameras, providing real-time visualization through the viewing windows.

Waste is efficiently reduced in size and packaged into bags weighing approximately 2.5 – 5.0 kg. The continuous feeding of waste is performed from the top of the incinerator.

The resulting off-gas is safely exhausted into the off-gas treatment system for further processing and environmental compliance with EU Directive 2010/75/EC.

Approximately every 24 hours, the resulting ash is emptied by the ash discharge system, cooled down, and filled into designated containers or drums for future treatment.

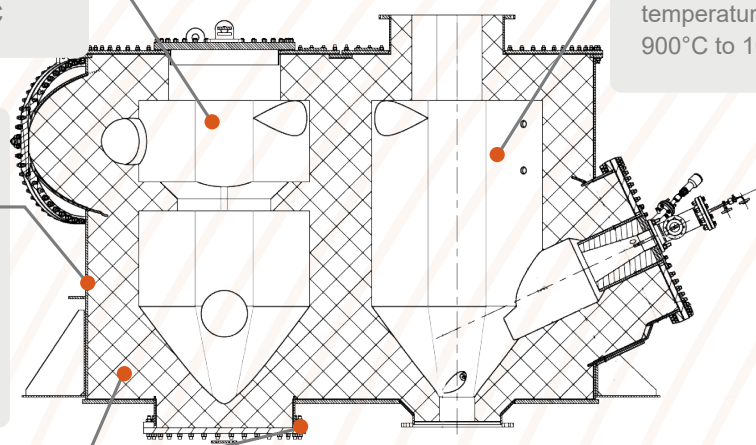


Afterburner chamber:
temperature range from
1100°C to 1150°C

Incinerator chamber:
temperature range from
900°C to 1050°C

The outside surface temperature for the incinerator remains below 60°C, despite the high internal temperatures, ensuring safe operation and minimal heat transfer to the surroundings. This also ensures energy savings for the process.

The multilayered refractory lining works as insulation material and is approximately 430 mm thick.



The resulting off-gas, containing combustible gaseous components and fine ash particles, is directed to the afterburner chamber for complete oxidation and combustion.

Control and Automation

The NUKEM incinerator IncPro features a sophisticated control and monitoring system, which can be integrated into a superordinate SCADA-system for seamless operation. Key parameters are continuously monitored from the main control panel, allowing for real-time adjustments to maintain optimal conditions.



Combustion Process

Combustion occurs in two zones of the incinerator, with each zone receiving dedicated combustion air. Waste is incinerated in the lower zone, where combustion air and steam react to achieve higher temperatures. The presence of steam in the process prevents lump formation from the ash. Complete combustion is ensured by the controlled supply of oxygen.

NUKEM's incinerator IncPro provides:

- > A space-saving solution
- > A throughput of 25 - 50 kg/h
- > An achieved volume reduction factor in the range of 15 to 50

Treated Materials

NUKEM's incinerator IncPro offers a comprehensive solution for the treatment of various types of waste, including both solid and liquid materials. By subjecting waste to extremely high temperatures, our incinerator effectively reduces its volume and hazard level.

The following categories of materials can be treated in the incinerator:

- > Radioactive waste
- > Hazardous waste
- > NORM waste
- > Household waste
- > Medical waste
- > Organic waste
- > Inorganic waste
- > Polymers
- > Textiles
- > Chemical waste

